Music Genre Classification

CS725 Project

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1 Project Description

Sometimes it happens that we listen to a particular music, we instantly develop an affinity towards to that genre and want to listen to same type of music. Or sometimes we just want to organize our music collection based on genre. This project aims to classify music into different categories such as:

1. Rock
2. Hip Hop
3. Jazz
4. Metal
5. Classical
6. Pop
7. Disco

2 Tentative Approach

We'll proceed using the following workflow:

- Pre-process of the audio files.
- Extract relevant features from the pre-processed files. For example, Mel-Frequency Cepstral Coefficient, Spectral Centroid etc.
- Use ensemble learning for classification of the features. Classification algorithms like K-NN, Random Forest, Linear Kernel SVN etc. will be a part of our ensemble learning.

3 Papers

- A Comparative Study on Content-based Music Genre Classification [1]
- Deep Content-based Music Recommendation [2]
- A Benchmark Dataset for Audio Classification and Clustering [3]

4 Datasets

We will use *GTZAN Genre Collection* [4]. The dataset consists of 1000 audio tracks each 30 seconds long. It contains 10 genres, each represented by 100 tracks. The tracks are all 22050Hz Mono 16-bit audio files in .wav format.

References

[1] Tao Li, Mitsunori Ogihara, and Qi Li. A comparative study on content-based music genre classification. In *Proceedings of the 26th Annual International ACM SIGIR Conference on Research and Development in Informaion Retrieval*, SIGIR '03, pages 282–289, New York, NY, USA, 2003. ACM.

[2] Aäron van den Oord, Sander Dieleman, and Benjamin Schrauwen. Deep content-based music recommendation. In *Proceedings of the 26th International Conference on Neural Information Processing Systems*, NIPS'13, pages 2643–2651, USA, 2013. Curran Associates Inc.

[3] Helge Homburg, Ingo Mierswa, Bülent Möller, Katharina Morik, and Michael Wurst. A benchmark dataset for audio classification and clustering. In *Proceedings of the 6th International Conference on Music Information Retrieval*, London, UK, September 11-15 2005. `http://ismir2005.ismir.net/proceedings/2117.pdf`.

[4] G. Tzanetakis and P. Cook. Gtzan genre collection. `http://marsyas.info/downloads/datasets.html`.